

AMENDMENTS TO THE SPECIFICATION

Please amend the specification as follows:

Please replace the paragraph beginning on page 12, line 12, with the following amended paragraph:

Above, and adjacent to conveyance belt 41, a plurality of printing heads 13, 14, 15, and 16 are provided across the full width of conveyance belt 41 so that ink can be jetted onto recording media sheets 2. At least one of printing heads 13, 14, 15, and 16, that is, printing head 13 is a black printing head which ejects black ink (BK), and printing heads 14, 15, and 16 are color printing heads which eject color ink of ~~yellow (Y)~~ cyan (C), magenta (M), and ~~cyan (C)~~ yellow (Y), respectively. In this case, the color ink includes not only basic colors of [[Y]] C, M, and [[C]] Y of the subtractive mixture, but also dark and light colors which record the dark and light of the basic colors of [[Y]] C, M, and [[C]] Y, that is, includes ink for all colors except for the black ink for black coloring.

Please replace the paragraph beginning on page 13, line 13, with the following amended paragraph:

Fig. 2 is a plan view of printing heads 13, 14, 15, and 16. For each of printing heads 13, 14, 15, and 16, plural unit heads U for jetting ink drops, are staggered perpendicular to conveyance direction X. Figs. 3 and 4 are explanatory drawings showing the arrangement of nozzles h provided in unit head U. As shown in Figs. 3 and 4, on the ejecting surface of unit head U facing recording media sheets 2, nozzles h are aligned in four lines A - D. Based on the conveyance of recording media sheets 2, from

each nozzle row A - D of unit head U, the ink drops are ejected in the order of row a1, row a2, and row a3 for row A[[,]]; row b1, row b2, and row b3 for row B[[,]]; row c1, row c2, and row c3 ~~and c4~~ for row C[[,]]; and row d1, row d2, and row d3 ~~and row d4~~ for row D. In each of rows A - D, nozzles h are arranged in such a way that they are composed of nozzle groups comprising three nozzles, each group being arranged at specified intervals in the direction perpendicular to conveyance direction X, and in each group, the three nozzles are deviated in the conveyance direction X at a specified pitch and also in the direction perpendicular to X at the above-mentioned interval. Further, the starting points of the rows A to D are deviated by one pixel in the direction perpendicular to conveyance direction X in the order of A, C, B, and D. By ejecting ink drops from each nozzle h arranged in the above-mentioned way, images can be recorded onto recording media sheets 2.

Please replace the paragraph beginning on page 16, line 7, with the following amended paragraph:

Still further, in the upper neighborhood of conveyance belt 41 and downstream of printing head 13, with respect to conveyance direction X, second light radiating device[[s]] 18 is provided for radiating light onto ~~yellow~~ cyan, magenta, ~~[[cyan]]~~ yellow, and black ink drops, landed on recording medium sheet 2, which hardens the surface of these ink drops.

Please replace the paragraph beginning on page 17, line 3, with the following amended paragraph:

On first light radiating device 17 and second light radiating device 18 shown in Fig. 2, a plurality of light sources for radiating the light are staggered perpendicular to conveyance direction X, and correspond to each of plural unit heads U. Though there is no limitation about light source L, it is preferable to arrange LED (a light emitting diode) arrays to emit the ultraviolet rays, across the full width of conveyance belt 41.

Please replace the paragraph beginning on page 21, line 3, with the following amended paragraph:

In image recording unit 50, provided are image recording section 51 to carry out image recording in accordance with signals from image recording signal output I/F 35, conveyance mechanism 52 to operate conveyance rollers 11 and tension rollers 42, light source control section 53 to control the output of light radiation devices 17[[,]] and 18[[, 19, and 20]] in accordance with a control signal from image recording section 51, and image recording control section (S-CPU) 54 to control the operation of the above-mentioned structural constituents.

Please replace the paragraph beginning on page 26, line 16, with the following amended paragraph:

Fig. 7 is a drawing of a second embodiment of the image recording apparatus 1a relating to the present invention. In a lower interior portion of image recording apparatus 1a, accommodation tray 3 is provided on which plural recording media sheets

2 are stacked. Above one of the ends of accommodation tray 3, take-up device 5 is provided which takes up recording media sheets 2 one by one, on which images are to be recorded, from accommodation tray 3. In this case, concerning recording media sheets 2, it is possible to employ cut sheets selected from various kinds of paper such as plain paper, recycled paper, and glossy paper, various kinds of cloth, various kinds of bonded textiles, and cut sheet of materials such as resin, metal, and glass.

Please amend the paragraph beginning on page 28, line 4, with the following amended paragraph:

Above, and adjacent to conveyance belt 41, a plurality of printing heads 14, 15, 16, and 13 are provided across the full width of conveyance belt 41 so that ink can be jetted onto recording media sheets 2. At least one of printing heads 14, 15, 16, and 13, that is, printing head 13 is a black printing head which ejects black ink (BK), and printing heads 14, 15, and 16 are color printing heads which eject color ink of ~~yellow (Y)~~ cyan (C), magenta (M), and ~~cyan (C)~~ yellow (Y), respectively. In this case, the color ink includes not only basic colors of C, M, and Y, of the subtractive mixture, but also dark and light colors which record the dark and light of the basic colors of C, M, and Y, that is, includes ink for all colors except for the black ink for black coloring.

Please amend the paragraph beginning on page 29, line 4, with the following amended paragraph:

Fig. 8 is a plan view of printing heads 13, 14, 15, and 16, ~~and 13~~. For each of printing heads 13, 14, 15, and 16, plural unit heads U for jetting ink drops, are staggered perpendicular to conveyance direction X. Figs. 3 and 4 are explanatory drawings showing the arrangement of nozzles h provided in unit head U. As shown in Figs. 3 and 4, on the ejecting surface of unit head U facing recording media sheets 2, nozzles h are aligned in four lines A - D. Based on the conveyance of recording media sheets 2, from each nozzle row A - D of unit head U, the ink drops are ejected in the order of row a1, row a2, and row a3 for row A[,,]; row b1, row b2, and row b3 for row B[,,]; row c1, row c2, and row c3 ~~and c4~~ for row C[,,]; and row d1, row d2, and row d3 ~~and row d4~~ for row D. In each of rows A - D, nozzles h are arranged in such a way that they are composed of nozzle groups comprising three nozzles, each group being arranged at specified intervals in the direction perpendicular to conveyance direction X, and in each group, the three nozzles are deviated in the conveyance direction X at a specified pitch and also in the direction perpendicular to X at the above-mentioned interval. Further, the starting points of the rows A to D are deviated by one pixel in the direction perpendicular to conveyance direction X in the order of A, C, B, and D. By ejecting ink drops from each nozzle h arranged in the above-mentioned way, images can be recorded onto recording media sheets 2. That is, from each nozzle row of unit heads U for A - D, the ink drops are jetted in the order of row a1, row a2, and row a3 for A[,,]; row b1, row b2, and row b3 for B[,,]; row c1, row c2, and row c3 for C[,,]; and row d1, row d2, and row d3 for D.

Please amend the paragraph beginning on page 31, line 19, with the following amended paragraph:

As shown in Fig. 7, in the upper neighborhood of conveyance belt 41 and downstream of printing head 16, with respect to conveyance direction X, ~~second~~ first light radiating device ~~[[18]]~~ 17 is provided for radiating light onto the color ink drops of ~~yellow~~ cyan, magenta, and ~~[[cyan]]~~ yellow, landed onto recording medium sheet 2, which hardens the surface of the color ink drops.

Please amend the paragraph beginning on page 32, line 2, with the following amended paragraph:

Still further, in the upper neighborhood of conveyance belt 41 and downstream of printing head 13, with respect to conveyance direction X, ~~[[first]]~~ second light radiating ~~devices~~ device 18 is provided for radiating light onto black ink drops and color ink drops, landed onto recording medium sheet 2, which hardens the surface of the black and color ink drops.

Please amend the paragraph beginning on page 33, line 7, with the following amended paragraph:

The amount of the radiated light from ~~second~~ the first light radiating device ~~[[18]]~~ 17 is determined in such a way that the light amount can assuredly harden the surface of the dots of ink by preserving the predetermined diameter of dots of ejected color ink, jetted from printing heads 14, 15 and 16, and landed on recording media sheets 2. On the other hand, the amount of radiated light from ~~[[first]]~~ the second light radiating device

[[17]] 18 is determined in such a way that the light amount can absolutely harden the black ink and the color ink, landed on recording media sheets 2.

Please amend the paragraph beginning on page 33, line 17, with the following amended paragraph:

When a color image is reproduced, the amount of jetted color ink is greater than that of jetted black ink. Therefore, in order to harden the jetted color ink, the radiating light energy for hardening the jetted color ink must be greater than that for hardening the jetted black ink. Accordingly, it is actualized that ~~second~~ the first light radiating device [[18]] 17 radiates more light energy than that radiated from [[first]] the second light radiating device [[17]] 18. In this case, concerning the setting of the light energy radiated from the first light radiating device 17 and the second light radiating device 18, both of which can change their light energy, the light energy radiated from the first light radiating device 17 and the second light radiating device 18 are controlled by a control device so that the above-mentioned relationship is obtained. For example, when light source L is a LED, the light energy is controlled by controlling the electrical current, while when light source L is a fluorescent tube, the light energy is controlled by controlling the electrical voltage. On the other hand, concerning the light radiating device wherein the light energy is not changed, that is, concerning the light radiating device which can radiate only unchangeable light energy, a plurality of the light radiating devices which radiate different amounts of light energy are arranged so that the above-mentioned relationship is obtained. It is also possible to control the radiating area by a slit, in order to change the light energy.

Please amend the paragraph beginning on page 37, line 4, with the following amended paragraph:

Further, when the leading edge of recording medium sheet 2 has reached conveyance belt 41, pressing roller 43 presses the leading edge portion of recording medium sheet 2 onto the circumferential surface of conveyance belt 41 to make it hold the sheet. Because conveyance belt 41 is made to revolve by tension rollers 42, recording medium sheet 2 is conveyed with the revolution. When recording medium sheet 2 is conveyed to the position of printing head 14, cyan ink drops are jetted onto recording medium sheet 2 from printing head 14. Subsequently, magenta ink drops are jetted from printing head 15 onto recording medium sheet 2, and next, yellow ink drops are also jetted from printing head 16 onto recording medium sheet 2. After that, all color ink drops jetted onto the recording medium sheet 2 are hardened by ~~second~~ the first light radiating device ~~[[18]]~~ 17.

Please amend the paragraph beginning on page 37, line 20, with the following amended paragraph:

In the same way, printing head 13 is brought into operation to jet black ink drops onto recording medium sheet 2, and after that, all the ink drops which have been landed on recording medium sheet 2 are completely hardened by ~~[[first]]~~ the second light radiating device ~~[[17]]~~ 18.

Please amend the paragraph beginning on page 38, line 8, with the following amended paragraph:

As explained up to now, by image recording apparatus 1a of the second embodiment of the present invention, because ~~second~~ the first light radiating device ~~[[18]]~~ 17 is disposed downstream of color printing head 16, which is most downstream among all of the color printing heads (which are printing heads 14, 15, and 16) with respect to conveyance direction X, the color ink drops landed on recording medium sheet 2~~[[,]]~~ are radiated by ~~second~~ the first light radiating device ~~[[18]]~~ 17 to be hardened~~[[,]]~~ before the black ink drops are jetted. Further, since ~~[[first]]~~ the second light radiating device ~~[[17]]~~ 18 is disposed downstream of black printing head 13 with respect to conveyance direction X, the black ink drops landed on recording media sheets 2~~[[,]]~~ are radiated by ~~[[first]]~~ the second light radiating device ~~[[17]]~~ 18 to be hardened.

Please amend the paragraph beginning on page 39, line 4, with the following amended paragraph:

Still further, in the second embodiment, since ~~second~~ the first light radiating device ~~[[18]]~~ 17 radiates light energy which is greater than that radiated from ~~[[first]]~~ the second light radiating device ~~[[17]]~~ 18, it is possible to thoroughly harden the colored ink. The present invention is not limited to the above embodiments, but can be changed as appropriate.

Please amend the paragraph beginning on page 40, line 1, with the following amended paragraph:

In Structure 3, the color ink drops landed onto the recording medium sheet[[, is]] are radiated by the ~~second~~ first light radiating device and hardened, before the black ink drops are jetted. Further, the black ink drops, landed onto the recording medium sheet after the color ink drops are hardened, are radiated by the ~~second~~ first light radiating device to be hardened. Accordingly, the color ink drops and the black ink drops can be separately hardened without being mixed. Especially, the black ink drops are landed onto the recording medium sheet after the color ink drops are hardened, and thereby, it is possible to improve the sharpness of the image, resulting in the color image having the sharp image quality.

Please amend the paragraph beginning on page 40, line 14, with the following amended paragraph:

In Structure 4, since the ~~second~~ first light radiating device radiates light energy which is greater than that radiated from the [[first]] second light radiating device, hardening is assured.